

# Moody's Investors Service ("MIS")

## Exhibit 1

# Credit Ratings Performance Measurement Statistics

Performance Measurement Statistics, consisting of transition and default rates for each applicable asset class and subclass of credit rating over 1-year, 3-year, and 10-year time periods through December 31, 2017, are provided in the Transition/Default Matrices on the following pages, pp. 1-28 (the "Matrices").<sup>1</sup> Please note that all the numbers in the Matrices are in percentage.

## Financial Institutions, Brokers and Dealers

### Financial Institutions, Brokers and Dealers - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	41	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	24	0%	67%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	71	0%	0%	62%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	4%
Aa3	106	0%	0%	0%	57%	37%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	5%
A1	263	0%	0%	0%	9%	82%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%
A2	198	0%	0%	0%	2%	3%	82%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%
A3	213	0%	0%	0%	0%	0%	5%	83%	5%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	1%
Baa1	209	0%	0%	0%	0%	0%	0%	11%	81%	5%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Baa2	189	0%	0%	0%	0%	0%	0%	1%	12%	73%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	3%
Baa3	177	0%	0%	0%	0%	0%	0%	0%	1%	12%	79%	1%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%
Ba1	89	0%	0%	0%	0%	0%	0%	0%	0%	1%	25%	60%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	2%
Ba2	73	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	5%	75%	3%	3%	0%	0%	0%	0%	0%	0%	0%	1%	3%	5%
Ba3	78	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	8%	6%	72%	3%	6%	0%	0%	0%	0%	0%	1%	0%	3%
B1	90	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	14%	56%	18%	0%	0%	0%	0%	0%	0%	0%	2%	7%
B2	83	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	13%	64%	8%	1%	0%	0%	1%	0%	0%	0%	10%
B3	51	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	33%	37%	12%	2%	2%	0%	0%	4%	0%	6%
Caa1	47	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	60%	6%	0%	0%	0%	4%	4%	4%
Caa2	15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	7%	7%	67%	0%	0%	0%	7%	7%	0%
Caa3	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	29%	43%	14%	0%	0%	0%	14%	0%
Ca	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	78%	11%	0%	0%	11%	0%
C	-																								
<b>Total</b>	<b>2,033</b>																								

<sup>1</sup> Ratings withdrawn for reasons other than having defaulted or been paid off are accounted for in the column titled "Withdrawn (other)."

## Financial Institutions, Brokers and Dealers - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	49	80%	2%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	8%
Aa1	28	0%	50%	39%	4%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%
Aa2	56	0%	2%	30%	36%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	4%
Aa3	108	0%	0%	16%	30%	35%	6%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	6%
A1	152	0%	0%	2%	13%	57%	17%	3%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	3%
A2	292	0%	0%	0%	7%	32%	36%	10%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	3%
A3	207	0%	0%	0%	2%	6%	9%	46%	17%	9%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	5%
Baa1	174	0%	0%	0%	1%	0%	5%	25%	40%	10%	1%	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	6%
Baa2	225	0%	0%	0%	0%	0%	0%	9%	22%	29%	15%	2%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	9%
Baa3	195	0%	0%	0%	0%	0%	1%	2%	6%	18%	38%	12%	5%	5%	2%	0%	0%	0%	0%	0%	0%	0%	0%	7%	6%
Ba1	79	0%	0%	0%	0%	0%	0%	1%	4%	4%	19%	22%	14%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	16%	15%
Ba2	60	0%	0%	0%	0%	0%	0%	0%	0%	8%	18%	8%	27%	17%	5%	2%	0%	0%	0%	0%	0%	0%	0%	3%	12%
Ba3	80	0%	0%	0%	0%	0%	0%	0%	1%	3%	8%	5%	10%	20%	11%	8%	1%	3%	0%	0%	0%	0%	3%	15%	14%
B1	74	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%	1%	20%	35%	12%	3%	3%	0%	1%	0%	0%	0%	5%	15%
B2	87	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	3%	14%	39%	6%	7%	0%	0%	0%	0%	7%	1%	20%
B3	64	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	3%	19%	22%	16%	3%	0%	0%	0%	13%	0%	23%
Caa1	43	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	2%	5%	5%	19%	7%	2%	12%	0%	2%	0%	14%	9%	19%
Caa2	26	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	27%	42%	4%	0%	0%	0%	8%	0%	15%
Caa3	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	60%	20%	0%
Ca	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%	0%	0%	13%	0%	50%
C	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
Total	2,014																								

## Financial Institutions, Brokers and Dealers - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	155	23%	1%	12%	10%	12%	3%	2%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	14%
Aa1	224	0%	4%	2%	11%	25%	6%	4%	1%	4%	2%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	18%	21%
Aa2	213	0%	0%	1%	5%	20%	14%	5%	7%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	18%	24%
Aa3	212	0%	0%	1%	7%	11%	7%	8%	9%	4%	2%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	5%	16%	26%
A1	242	0%	0%	0%	1%	10%	12%	9%	2%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	13%	36%
A2	243	0%	0%	0%	2%	2%	10%	12%	9%	2%	7%	1%	1%	0%	1%	1%	0%	0%	0%	0%	0%	0%	5%	12%	31%
A3	142	0%	0%	0%	0%	1%	7%	18%	10%	7%	5%	1%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	4%	9%	35%
Baa1	108	0%	0%	0%	0%	0%	6%	15%	14%	4%	6%	1%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	6%	11%	36%
Baa2	94	0%	0%	0%	0%	0%	0%	1%	13%	15%	14%	9%	4%	1%	2%	5%	1%	0%	0%	0%	0%	0%	7%	4%	23%
Baa3	63	0%	0%	0%	0%	0%	0%	2%	10%	14%	10%	3%	16%	2%	3%	0%	0%	2%	0%	0%	0%	0%	3%	11%	25%
Ba1	47	0%	0%	0%	0%	0%	0%	0%	2%	9%	6%	9%	2%	2%	6%	2%	0%	2%	0%	0%	0%	0%	15%	21%	23%
Ba2	79	0%	0%	0%	0%	0%	0%	0%	1%	3%	15%	6%	6%	9%	3%	5%	1%	9%	0%	0%	0%	0%	14%	0%	28%
Ba3	65	0%	0%	0%	0%	0%	0%	0%	2%	5%	3%	0%	2%	9%	5%	14%	0%	0%	0%	0%	0%	0%	17%	5%	40%
B1	73	0%	0%	0%	0%	0%	0%	0%	0%	11%	10%	11%	3%	4%	3%	4%	1%	0%	0%	0%	0%	0%	10%	3%	41%
B2	61	0%	0%	0%	0%	0%	0%	0%	0%	3%	3%	0%	0%	2%	2%	5%	3%	11%	3%	0%	0%	0%	30%	2%	36%
B3	46	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	4%	17%	7%	0%	0%	0%	0%	22%	4%	41%
Caa1	30	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	17%	7%	17%	0%	0%	0%	0%	0%	3%	3%	37%
Caa2	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Caa3	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
Ca	-																								
C	-																								
Total	2,099																								

## Insurance Companies

### Insurance Companies - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	5	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	12	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	63	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa3	100	0%	0%	2%	90%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
A1	129	0%	0%	0%	3%	89%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
A2	190	0%	0%	0%	0%	5%	89%	3%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
A3	117	0%	0%	0%	0%	0%	13%	80%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%
Baa1	67	0%	0%	0%	0%	0%	4%	4%	87%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Baa2	80	0%	0%	0%	0%	0%	0%	0%	5%	81%	9%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Baa3	37	0%	0%	0%	0%	0%	0%	0%	0%	11%	59%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	3%
Ba1	15	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	87%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba2	8	0%	0%	0%	0%	0%	0%	0%	13%	0%	13%	50%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba3	17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	35%	47%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%
B1	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%
B2	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	70%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%
B3	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	71%	14%	0%	0%	0%	0%	0%	0%	0%	0%	14%
Caa1	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	25%	0%	0%	0%	0%	25%	0%
Caa2	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67%	17%	0%	0%	0%	17%	0%
Caa3	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%
Ca	-																								
C	-																								
Total	878																								

### Insurance Companies - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	5	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	12	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	80	0%	0%	79%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
Aa3	62	0%	0%	3%	82%	2%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	6%
A1	149	0%	0%	0%	17%	63%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	5%
A2	204	0%	0%	0%	0%	12%	69%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	14%
A3	120	0%	0%	0%	1%	3%	19%	59%	4%	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	3%	9%
Baa1	59	0%	0%	0%	0%	0%	5%	12%	64%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	12%
Baa2	76	0%	0%	0%	0%	1%	0%	1%	21%	59%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	7%
Baa3	39	0%	0%	0%	0%	0%	0%	0%	3%	31%	33%	8%	0%	3%	0%	3%	0%	0%	0%	0%	0%	0%	0%	10%	10%
Ba1	16	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	31%
Ba2	9	0%	0%	0%	0%	0%	0%	0%	11%	0%	11%	0%	33%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	11%
Ba3	10	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	10%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%
B1	15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	20%	13%	27%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%
B2	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	13%	25%	0%	0%	25%	0%	0%	0%	0%	0%	0%	25%
B3	13	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	31%	23%	0%	0%	0%	0%	0%	0%	0%	8%	31%
Caa1	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	50%	0%	0%	0%	0%	0%	25%
Caa2	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	33%	0%	0%	0%	33%	0%
Caa3	-																								
Ca	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
C	-																								
Total	888																								

## Insurance Companies - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	38	13%	13%	8%	0%	0%	5%	8%	3%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	8%	37%
Aa1	27	0%	19%	11%	15%	4%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	19%
Aa2	127	0%	0%	15%	26%	3%	11%	2%	4%	2%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	6%	28%
Aa3	215	0%	0%	12%	13%	25%	8%	6%	0%	1%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	3%	29%
A1	80	0%	0%	0%	3%	20%	24%	8%	4%	8%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	31%
A2	195	0%	0%	0%	6%	11%	35%	8%	1%	2%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	1%	3%	33%
A3	130	0%	0%	0%	5%	7%	18%	16%	8%	3%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%	35%
Baa1	39	0%	0%	0%	0%	0%	21%	5%	31%	10%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	18%
Baa2	39	0%	0%	0%	0%	3%	0%	0%	18%	41%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	21%
Baa3	39	0%	0%	0%	0%	0%	8%	0%	8%	15%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	49%
Ba1	17	0%	0%	0%	0%	0%	0%	6%	0%	12%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	65%
Ba2	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	75%
Ba3	19	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	21%	5%	0%	0%	0%	0%	0%	0%	0%	0%	5%	11%	53%
B1	13	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	85%
B2	17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	29%	6%	0%	0%	0%	0%	0%	0%	0%	0%	47%
B3	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%
Caa1	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	25%	0%	0%	25%	25%
Caa2	-																								
Caa3	-																								
Ca	-																								
C	-																								
Total	1,008																								

## Corporate Issuers

### Corporate Issuers - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	13	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	11	0%	73%	27%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	43	0%	0%	93%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%
Aa3	80	0%	0%	0%	58%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%
A1	127	0%	0%	0%	0%	81%	17%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
A2	194	0%	0%	0%	0%	10%	81%	3%	1%	1%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%
A3	308	0%	0%	0%	0%	0%	8%	79%	8%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%
Baa1	373	0%	0%	0%	0%	0%	1%	7%	85%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%
Baa2	416	0%	0%	0%	0%	0%	0%	0%	9%	80%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	1%
Baa3	365	0%	0%	0%	0%	0%	0%	0%	1%	11%	79%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	2%
Ba1	150	0%	0%	0%	0%	0%	0%	0%	0%	1%	9%	76%	7%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%
Ba2	153	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	7%	67%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	8%	1%
Ba3	151	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	9%	67%	9%	1%	1%	0%	0%	0%	0%	0%	0%	10%	2%
B1	157	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	18%	54%	7%	4%	1%	0%	0%	0%	0%	1%	13%	1%
B2	118	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	16%	51%	14%	0%	1%	1%	0%	0%	1%	9%	2%
B3	158	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	5%	17%	61%	4%	0%	0%	0%	0%	0%	9%	2%
Caa1	151	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	17%	55%	7%	2%	1%	0%	0%	14%	3%
Caa2	93	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%	17%	45%	2%	4%	0%	10%	14%	2%
Caa3	43	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	9%	28%	5%	5%	28%	12%	2%
Ca	28	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	11%	25%	4%	39%	18%	0%
C	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	60%	0%	0%
Total	3,137																								

### Corporate Issuers - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	14	93%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Aa1	28	0%	21%	46%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%
Aa2	22	0%	0%	41%	23%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	18%
Aa3	92	0%	0%	20%	36%	38%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%
A1	140	0%	0%	0%	1%	61%	18%	7%	6%	1%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	1%
A2	199	0%	0%	0%	0%	9%	58%	16%	7%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	3%
A3	298	0%	0%	0%	0%	1%	11%	55%	14%	4%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	2%
Baa1	349	0%	0%	0%	0%	0%	1%	12%	62%	9%	3%	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	6%	3%
Baa2	418	0%	0%	0%	0%	0%	0%	0%	13%	51%	13%	5%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	2%
Baa3	381	0%	0%	0%	0%	0%	0%	0%	2%	18%	42%	8%	6%	2%	2%	1%	1%	2%	0%	0%	0%	0%	0%	13%	3%
Ba1	135	0%	0%	0%	0%	0%	0%	0%	0%	1%	17%	30%	12%	9%	2%	0%	5%	0%	1%	0%	0%	0%	1%	19%	2%
Ba2	124	0%	0%	0%	0%	0%	0%	0%	0%	2%	12%	11%	27%	13%	4%	3%	3%	0%	0%	0%	0%	0%	3%	19%	2%
Ba3	140	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	6%	13%	24%	10%	5%	3%	2%	1%	1%	0%	0%	2%	24%	7%
B1	154	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	2%	5%	11%	28%	8%	10%	5%	1%	0%	0%	0%	4%	19%	5%
B2	138	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	1%	3%	12%	20%	17%	6%	1%	1%	0%	0%	10%	21%	7%
B3	187	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	6%	9%	23%	5%	3%	0%	0%	0%	12%	30%	4%
Caa1	192	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	3%	5%	9%	16%	6%	3%	1%	1%	16%	36%	4%
Caa2	88	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	3%	7%	11%	6%	3%	0%	28%	33%	5%
Caa3	22	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	5%	5%	5%	5%	55%	18%	5%
Ca	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	67%	22%	0%
C	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	50%
Total	3,132																								

## Corporate Issuers - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	44	23%	7%	5%	23%	2%	5%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	30%
Aa1	59	0%	5%	24%	12%	25%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	20%
Aa2	43	0%	0%	9%	16%	19%	2%	14%	5%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	21%
Aa3	53	0%	0%	4%	19%	21%	15%	4%	2%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	19%
A1	165	0%	0%	4%	0%	21%	11%	14%	7%	5%	2%	3%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	16%	16%
A2	230	0%	0%	3%	0%	7%	18%	16%	14%	6%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	18%
A3	304	0%	0%	0%	0%	1%	10%	17%	16%	7%	4%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	28%
Baa1	327	0%	0%	0%	0%	1%	6%	9%	22%	12%	8%	2%	1%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	17%	20%
Baa2	359	0%	0%	0%	0%	1%	1%	5%	14%	19%	9%	4%	2%	1%	1%	1%	0%	1%	0%	0%	0%	0%	1%	15%	24%
Baa3	294	0%	0%	0%	0%	0%	1%	3%	5%	16%	14%	6%	3%	2%	0%	0%	2%	1%	0%	0%	0%	0%	1%	19%	26%
Ba1	108	0%	0%	0%	0%	0%	0%	2%	3%	8%	14%	7%	7%	5%	3%	1%	0%	0%	0%	1%	0%	0%	6%	17%	27%
Ba2	91	0%	0%	0%	0%	0%	0%	0%	0%	4%	3%	7%	7%	4%	2%	2%	5%	1%	1%	0%	1%	0%	8%	26%	27%
Ba3	111	0%	0%	0%	0%	0%	0%	0%	2%	4%	5%	0%	5%	3%	5%	1%	5%	2%	0%	1%	0%	0%	14%	31%	23%
B1	113	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	1%	8%	7%	2%	4%	1%	0%	0%	0%	0%	19%	31%	22%
B2	127	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	2%	2%	3%	3%	2%	2%	1%	1%	0%	0%	21%	28%	34%
B3	152	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	1%	3%	2%	1%	1%	0%	0%	0%	30%	33%	26%
Caa1	124	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	2%	2%	1%	2%	0%	0%	0%	0%	40%	27%	23%
Caa2	47	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	6%	2%	0%	0%	0%	0%	47%	19%	21%
Caa3	12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	92%	0%	8%
Ca	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	71%	0%	29%
C	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	50%
<b>Total</b>	<b>2,772</b>																								

## Short Term Corporate Commercial Paper

### Short Term Corporate Commercial Paper - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	629	96%	2%	0%	0%	0%	1%	1%
P-2	566	2%	90%	2%	0%	0%	4%	1%
P-3	79	0%	8%	81%	8%	0%	3%	1%
NP	139	0%	0%	4%	90%	0%	4%	2%
<b>Total</b>	<b>1,413</b>							

### Short Term Corporate Commercial Paper - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	617	85%	8%	0%	0%	0%	5%	2%
P-2	547	6%	73%	5%	3%	0%	9%	4%
P-3	75	3%	24%	31%	15%	0%	27%	1%
NP	109	0%	3%	10%	64%	0%	14%	9%
<b>Total</b>	<b>1,348</b>							

### Short Term Corporate Commercial Paper - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	836	45%	15%	2%	3%	0%	13%	22%
P-2	397	7%	44%	4%	4%	0%	18%	23%
P-3	38	0%	32%	8%	3%	0%	13%	45%
NP	75	0%	8%	3%	19%	3%	20%	48%
<b>Total</b>	<b>1,346</b>							

## Residential Mortgage Backed Securities (RMBS)

### RMBS - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,998	88%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%
Aa1	410	21%	59%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
Aa2	824	11%	13%	55%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%
Aa3	344	18%	12%	14%	38%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	1%
A1	603	8%	7%	15%	8%	44%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%
A2	486	2%	1%	6%	11%	9%	62%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%
A3	686	1%	0%	1%	6%	9%	3%	59%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	1%
Baa1	970	1%	0%	0%	2%	6%	5%	5%	64%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	3%
Baa2	602	0%	0%	1%	0%	3%	6%	9%	8%	60%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	1%
Baa3	1,043	0%	0%	0%	0%	0%	1%	4%	9%	3%	66%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	3%
Ba1	972	0%	0%	0%	0%	0%	0%	1%	5%	7%	7%	69%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	7%	1%
Ba2	712	0%	0%	0%	0%	0%	0%	1%	2%	5%	5%	9%	66%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%	6%	3%
Ba3	825	0%	0%	0%	0%	0%	0%	0%	1%	1%	5%	11%	3%	66%	2%	2%	0%	0%	0%	0%	0%	0%	0%	6%	2%
B1	1,104	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	7%	6%	5%	70%	0%	1%	0%	0%	0%	0%	0%	1%	5%	2%
B2	732	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%	5%	8%	6%	63%	1%	1%	1%	0%	0%	0%	1%	7%	2%
B3	854	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	6%	10%	3%	62%	1%	3%	0%	0%	0%	2%	7%	2%
Caa1	1,451	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	4%	3%	2%	76%	1%	0%	0%	0%	6%	4%	1%
Caa2	1,414	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	3%	3%	2%	78%	0%	0%	0%	8%	3%	1%
Caa3	1,225	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	2%	4%	2%	79%	0%	0%	6%	2%	0%
Ca	2,156	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	2%	2%	84%	1%	4%	3%	1%
C	1,967	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	4%	78%	8%	3%	1%
Total	21,378																								

### RMBS - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,630	57%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	42%	1%
Aa1	289	12%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	58%	1%
Aa2	315	11%	20%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	2%
Aa3	244	8%	15%	5%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	51%	1%
A1	589	4%	3%	17%	2%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	1%
A2	662	3%	3%	22%	2%	2%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	1%
A3	847	5%	2%	7%	2%	6%	1%	30%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	5%
Baa1	1,241	4%	3%	4%	2%	2%	2%	3%	39%	1%	4%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	9%
Baa2	733	5%	2%	5%	5%	4%	3%	4%	5%	29%	2%	2%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	27%	4%
Baa3	1,043	3%	0%	4%	3%	4%	2%	5%	6%	2%	35%	2%	4%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	22%	5%
Ba1	945	2%	1%	2%	2%	3%	3%	2%	4%	3%	9%	34%	1%	3%	2%	1%	0%	1%	0%	0%	0%	0%	1%	21%	5%
Ba2	839	2%	1%	1%	2%	2%	2%	4%	5%	5%	9%	11%	24%	1%	6%	1%	1%	1%	0%	0%	0%	0%	1%	17%	6%
Ba3	1,006	0%	1%	0%	2%	2%	2%	3%	3%	4%	5%	13%	3%	28%	4%	5%	1%	0%	0%	0%	0%	0%	1%	17%	5%
B1	987	1%	0%	1%	1%	2%	2%	3%	3%	3%	5%	9%	9%	3%	34%	1%	5%	1%	0%	0%	0%	0%	2%	13%	2%
B2	1,009	0%	0%	0%	0%	0%	1%	2%	2%	3%	3%	7%	5%	7%	8%	21%	3%	17%	1%	0%	0%	0%	2%	14%	3%
B3	960	0%	0%	0%	0%	1%	0%	1%	2%	2%	4%	6%	5%	7%	13%	4%	27%	5%	5%	1%	0%	0%	4%	11%	2%
Caa1	1,718	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	2%	2%	3%	5%	4%	3%	40%	7%	1%	0%	0%	15%	10%	2%
Caa2	1,776	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	2%	3%	4%	3%	4%	4%	46%	2%	1%	0%	20%	5%	2%
Caa3	1,618	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	2%	5%	3%	3%	5%	48%	3%	0%	0%	16%	4%	1%
Ca	2,736	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	3%	2%	2%	3%	3%	3%	60%	3%	11%	4%	1%
C	3,137	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	1%	2%	2%	3%	4%	6%	47%	23%	6%	1%
Total	24,324																								

## RMBS - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	32,171	2%	1%	1%	0%	1%	1%	1%	2%	1%	2%	2%	1%	1%	1%	1%	1%	3%	3%	2%	4%	1%	30%	20%	18%
Aa1	3,526	1%	0%	1%	0%	0%	0%	1%	1%	1%	2%	2%	1%	2%	3%	1%	1%	1%	1%	1%	2%	3%	63%	10%	3%
Aa2	4,208	1%	0%	1%	0%	1%	1%	1%	1%	1%	2%	4%	2%	2%	4%	1%	1%	1%	2%	1%	2%	3%	49%	12%	7%
Aa3	2,374	1%	1%	1%	1%	0%	0%	0%	0%	1%	1%	2%	2%	2%	3%	1%	1%	1%	1%	1%	1%	3%	59%	11%	6%
A1	1,442	1%	0%	2%	1%	1%	0%	0%	1%	1%	1%	2%	2%	3%	5%	1%	1%	1%	1%	1%	2%	4%	57%	7%	5%
A2	3,388	0%	0%	1%	0%	1%	1%	0%	1%	1%	1%	1%	1%	2%	3%	1%	2%	1%	1%	2%	3%	4%	53%	11%	7%
A3	2,001	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	1%	1%	1%	1%	1%	4%	8%	65%	6%	4%
Baa1	1,940	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	3%	8%	69%	8%	3%
Baa2	3,137	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	2%	5%	69%	10%	8%
Baa3	2,008	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%	4%	77%	6%	5%
Ba1	1,002	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	82%	7%	3%
Ba2	1,279	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	1%	1%	1%	2%	79%	7%	6%
Ba3	602	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	2%	1%	82%	4%	6%
B1	439	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	1%	1%	0%	0%	0%	0%	0%	1%	86%	6%	2%
B2	625	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%	86%	4%	6%
B3	870	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	93%	2%	1%
Caa1	249	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	4%	84%	3%	5%
Caa2	277	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	93%	1%	2%
Caa3	180	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	97%	1%	1%
Ca	486	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%	89%	2%	3%
C	714	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	97%	1%	1%
Total	62,918																								

We are now reporting default rates for structured finance credits, a switch from the impairment rates which we reported previously under the old guidance.

For Moody's definition on default, please refer to [Rating Symbols and Definitions](#)

## Commercial Mortgage Backed Securities (CMBS)

### CMBS - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,829	82%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%
Aa1	118	6%	62%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	27%	0%
Aa2	186	7%	2%	69%	1%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
Aa3	223	1%	2%	2%	77%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%
A1	165	2%	0%	3%	2%	66%	3%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	0%
A2	115	1%	2%	1%	7%	10%	50%	3%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%	0%
A3	185	0%	0%	1%	1%	5%	3%	70%	1%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%
Baa1	96	0%	0%	2%	0%	1%	5%	1%	60%	0%	0%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%
Baa2	99	1%	0%	1%	0%	1%	2%	9%	6%	54%	0%	1%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	23%	0%
Baa3	161	1%	0%	0%	0%	1%	0%	1%	11%	2%	57%	4%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	23%	0%
Ba1	85	0%	0%	0%	0%	0%	2%	1%	2%	1%	6%	48%	0%	1%	0%	1%	0%	1%	0%	0%	0%	0%	0%	34%	1%
Ba2	123	0%	0%	0%	0%	0%	1%	1%	0%	1%	10%	2%	55%	9%	6%	0%	2%	0%	0%	0%	0%	0%	0%	15%	0%
Ba3	71	0%	0%	0%	0%	0%	0%	0%	3%	0%	3%	4%	4%	49%	4%	4%	6%	1%	0%	1%	0%	0%	1%	18%	0%
B1	76	1%	0%	0%	0%	0%	0%	0%	0%	1%	3%	3%	11%	3%	37%	1%	4%	1%	1%	0%	0%	0%	1%	33%	0%
B2	112	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	7%	5%	46%	8%	10%	0%	1%	0%	1%	2%	17%	0%
B3	77	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	3%	0%	14%	4%	45%	8%	6%	0%	0%	3%	1%	14%	0%
Caa1	89	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	3%	3%	7%	3%	38%	7%	7%	0%	4%	8%	18%	0%
Caa2	79	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	5%	5%	46%	8%	5%	5%	10%	15%	0%
Caa3	129	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	4%	1%	58%	2%	7%	13%	13%	0%
Ca	43	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	44%	28%	9%	16%	0%
C	142	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	48%	35%	12%	0%
Total	4,203																								

### CMBS - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																						Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)	
Aaa	1,581	49%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	51%	0%	
Aa1	89	8%	22%	6%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	62%	0%	
Aa2	160	11%	8%	20%	1%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	59%	0%	
Aa3	213	2%	4%	6%	46%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	39%	0%	
A1	186	2%	1%	1%	7%	32%	3%	1%	1%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	52%	0%	
A2	186	5%	2%	4%	5%	13%	20%	1%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	47%	1%	
A3	208	1%	0%	1%	3%	6%	4%	44%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	38%	0%	
Baa1	126	5%	1%	0%	1%	2%	2%	2%	26%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	60%	0%	
Baa2	147	3%	1%	1%	0%	3%	5%	4%	2%	18%	0%	1%	0%	0%	1%	1%	1%	1%	0%	0%	0%	0%	1%	57%	1%	
Baa3	260	2%	0%	0%	0%	1%	1%	3%	7%	5%	27%	6%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	44%	0%	
Ba1	132	2%	1%	2%	0%	1%	1%	2%	2%	3%	0%	9%	3%	1%	2%	1%	0%	1%	0%	0%	0%	1%	2%	67%	0%	
Ba2	155	4%	0%	0%	0%	1%	2%	0%	3%	1%	3%	8%	31%	7%	3%	0%	1%	0%	1%	0%	0%	0%	1%	35%	1%	
Ba3	126	3%	0%	0%	0%	0%	0%	1%	1%	0%	4%	2%	4%	18%	3%	2%	4%	2%	0%	2%	0%	1%	0%	55%	0%	
B1	124	2%	0%	0%	1%	1%	1%	2%	2%	1%	2%	2%	6%	0%	7%	1%	2%	2%	2%	0%	0%	0%	2%	62%	2%	
B2	170	1%	1%	1%	1%	1%	0%	1%	3%	0%	1%	1%	2%	3%	4%	26%	5%	5%	0%	0%	0%	1%	6%	38%	0%	
B3	139	1%	0%	1%	0%	1%	1%	0%	1%	1%	2%	2%	2%	1%	7%	4%	16%	3%	6%	1%	1%	2%	4%	42%	0%	
Caa1	162	1%	0%	1%	0%	0%	1%	0%	1%	0%	1%	1%	0%	3%	3%	2%	1%	17%	4%	4%	1%	4%	18%	38%	1%	
Caa2	168	0%	0%	1%	1%	0%	0%	1%	0%	0%	1%	1%	1%	1%	3%	1%	4%	4%	15%	8%	1%	4%	20%	35%	2%	
Caa3	274	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	0%	0%	1%	1%	1%	3%	1%	22%	2%	7%	28%	30%	1%	
Ca	106	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	3%	2%	2%	15%	15%	26%	30%	1%	
C	281	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	17%	67%	10%	2%	
Total	4,993																									

## CMBS - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	3,365	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	67%	25%
Aa1	280	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	1%	3%	1%	0%	1%	2%	11%	62%	14%
Aa2	628	1%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	0%	2%	14%	57%	15%
Aa3	355	2%	1%	0%	2%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	1%	2%	1%	3%	19%	54%	10%
A1	275	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	1%	0%	2%	1%	3%	21%	54%	13%
A2	588	1%	0%	0%	0%	0%	1%	0%	1%	0%	1%	0%	0%	1%	0%	0%	1%	1%	0%	1%	1%	2%	23%	55%	12%
A3	437	1%	0%	0%	1%	0%	0%	1%	0%	0%	1%	1%	0%	1%	0%	0%	1%	0%	1%	2%	1%	2%	30%	49%	7%
Baa1	469	2%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	0%	1%	36%	45%	8%
Baa2	629	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	0%	0%	1%	0%	0%	1%	0%	2%	0%	1%	33%	44%	12%
Baa3	610	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	40%	44%	7%
Ba1	398	2%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	51%	37%	6%
Ba2	464	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	53%	33%	7%
Ba3	363	1%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	1%	61%	29%	4%
B1	296	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	1%	0%	0%	0%	0%	1%	0%	0%	0%	1%	67%	24%	3%
B2	330	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	0%	1%	66%	26%	3%
B3	293	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	1%	72%	22%	1%
Caa1	41	2%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	2%	0%	0%	2%	0%	0%	0%	0%	80%	10%	0%
Caa2	42	0%	0%	0%	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	81%	12%	0%
Caa3	23	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	83%	9%	4%
Ca	17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	88%	0%	6%
C	31	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	94%	0%	6%
Total	9,934																								

CMBS: Commercial real estate (CRE) CDOs, where 70% or more of the collateral is comprised of CRE loans, are classified as CMBS. If the collateral backing the transaction contains less than 70% CRE loans, then the deal is classified as a CDO.

## Collateralized Loan Obligations (CLOs)

### CLOs - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,810	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	65%	0%
Aa1	122	17%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%
Aa2	668	1%	1%	46%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	51%	0%
Aa3	47	23%	2%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	68%	0%
A1	41	17%	2%	2%	2%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	71%	0%
A2	552	1%	0%	0%	0%	1%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%
A3	53	11%	2%	2%	0%	8%	4%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	55%	0%
Baa1	31	6%	3%	13%	0%	0%	6%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	61%	0%
Baa2	144	1%	1%	0%	0%	0%	2%	1%	1%	44%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	49%	0%
Baa3	442	0%	0%	0%	0%	0%	0%	0%	0%	3%	61%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	0%
Ba1	58	9%	2%	2%	0%	2%	3%	3%	3%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	66%	0%
Ba2	178	0%	1%	1%	0%	0%	1%	1%	1%	1%	2%	3%	56%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%
Ba3	427	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	76%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%
B1	39	0%	0%	0%	0%	3%	0%	0%	0%	0%	3%	0%	5%	3%	28%	0%	0%	3%	0%	0%	0%	0%	0%	56%	0%
B2	187	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	5%	73%	1%	2%	0%	0%	0%	0%	0%	19%	0%
B3	92	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	4%	74%	2%	0%	0%	0%	0%	0%	15%	0%
Caa1	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%	13%	0%	0%	0%	0%	0%	75%	0%
Caa2	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	25%	0%	0%	0%	50%	0%
Caa3	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	0%	0%	0%	29%	0%	0%	0%	57%	0%
Ca	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	67%	0%
C	-																								
Total	4,913																								

### CLOs - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,830	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	93%	0%
Aa1	142	9%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	90%	0%
Aa2	354	5%	3%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	0%
Aa3	87	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	86%	0%
A1	87	11%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	87%	0%
A2	270	3%	0%	0%	1%	2%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	89%	0%
A3	82	13%	2%	1%	1%	0%	2%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	76%	0%
Baa1	82	11%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	0%
Baa2	108	4%	2%	1%	0%	0%	2%	0%	2%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	84%	0%
Baa3	246	2%	2%	1%	0%	0%	0%	0%	0%	5%	24%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	64%	0%
Ba1	130	4%	0%	2%	2%	0%	2%	2%	1%	3%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	83%	0%
Ba2	161	1%	1%	0%	0%	3%	2%	1%	1%	0%	1%	2%	14%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	71%	0%
Ba3	243	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%	0%	6%	43%	2%	0%	0%	0%	0%	0%	0%	0%	0%	43%	0%
B1	75	4%	0%	0%	0%	0%	1%	1%	0%	0%	3%	3%	8%	1%	7%	8%	3%	0%	0%	0%	0%	0%	0%	61%	0%
B2	117	0%	0%	0%	1%	0%	0%	0%	0%	0%	3%	2%	0%	0%	2%	54%	1%	4%	1%	0%	0%	0%	0%	32%	0%
B3	47	2%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	6%	43%	4%	0%	2%	0%	0%	4%	32%	0%
Caa1	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	10%	0%	0%	0%	0%	0%	0%	80%	0%
Caa2	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	40%	0%	0%	0%	40%	0%
Caa3	14	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	7%	86%	0%
Ca	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	50%	0%	0%
C	-																								
Total	4,092																								

## CLOs - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,303	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	92%	5%
Aa1	132	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	94%	2%
Aa2	588	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	91%	1%
Aa3	19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	53%	47%
A1	40	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	98%	3%
A2	651	6%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	90%	2%
A3	53	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79%	15%
Baa1	12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67%	33%
Baa2	615	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	91%	3%
Baa3	187	6%	2%	2%	1%	0%	1%	2%	1%	2%	1%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	2%	74%	5%
Ba1	21	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	76%	5%
Ba2	420	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	1%	90%	1%
Ba3	126	0%	0%	1%	2%	2%	2%	1%	0%	2%	5%	5%	2%	2%	3%	0%	0%	0%	0%	1%	1%	0%	9%	61%	3%
B1	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
B2	13	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	8%	0%	15%	8%	0%	0%	0%	0%	0%	15%	38%	0%
B3	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	25%	25%
Caa1	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
Caa2	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	20%	40%
Caa3	-																								
Ca	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
C	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%	0%	25%
Total	4,211																								

## Collateralized Debt Obligations (CDOs)

### CDOs - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	208	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	39%	1%
Aa1	56	18%	63%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
Aa2	77	8%	14%	48%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Aa3	34	0%	24%	18%	47%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%
A1	48	0%	4%	10%	21%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	44%	2%
A2	64	0%	0%	6%	8%	5%	63%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%
A3	29	0%	3%	7%	17%	21%	3%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	0%
Baa1	17	0%	0%	0%	12%	6%	6%	12%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	59%	0%
Baa2	21	0%	0%	10%	10%	0%	0%	10%	0%	10%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	52%	0%
Baa3	59	0%	0%	0%	3%	10%	3%	2%	12%	5%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%
Ba1	30	0%	0%	0%	0%	3%	0%	3%	10%	3%	13%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	37%	0%
Ba2	27	7%	0%	0%	0%	4%	0%	0%	0%	4%	4%	19%	26%	0%	4%	0%	0%	0%	4%	0%	0%	0%	0%	30%	0%
Ba3	31	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	26%	0%	55%	0%	0%	0%	0%	3%	0%	0%	0%	0%	16%	0%
B1	21	0%	0%	0%	0%	0%	0%	0%	10%	0%	5%	5%	48%	0%	24%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
B2	30	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	10%	0%	20%	7%	20%	0%	0%	0%	0%	0%	0%	7%	33%	0%
B3	32	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	53%	0%	0%	0%	0%	0%	0%	19%	0%
Caa1	29	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	3%	3%	10%	55%	0%	0%	0%	0%	0%	24%	0%
Caa2	31	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	6%	10%	26%	0%	0%	0%	0%	48%	0%
Caa3	70	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	3%	0%	7%	36%	0%	0%	0%	50%	0%
Ca	242	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	84%	0%	0%	11%	3%
C	388	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	94%	0%	2%	3%
Total	1,544																								

### CDOs - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																						Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)	
Aaa	237	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	77%	3%	
Aa1	58	26%	28%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	41%	2%	
Aa2	59	5%	14%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	63%	0%	
Aa3	33	6%	30%	6%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%	
A1	47	4%	11%	13%	9%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	51%	11%	
A2	75	1%	3%	9%	9%	1%	16%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	57%	1%	
A3	58	2%	3%	9%	10%	2%	3%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	48%	14%	
Baa1	34	0%	3%	3%	18%	18%	6%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%	12%	
Baa2	28	4%	0%	4%	7%	14%	0%	4%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	64%	0%	
Baa3	49	0%	0%	0%	4%	14%	8%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	53%	8%	
Ba1	49	4%	2%	0%	2%	2%	4%	4%	4%	0%	2%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	63%	2%	
Ba2	44	11%	0%	2%	2%	2%	0%	2%	2%	0%	2%	0%	9%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	61%	2%	
Ba3	31	3%	0%	0%	6%	0%	0%	3%	10%	0%	3%	3%	0%	6%	0%	3%	0%	0%	0%	0%	0%	0%	0%	61%	0%	
B1	28	0%	0%	4%	0%	0%	0%	0%	0%	7%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	68%	0%	
B2	42	0%	0%	0%	2%	0%	0%	0%	0%	2%	0%	12%	0%	12%	2%	5%	0%	14%	2%	0%	0%	0%	0%	48%	0%	
B3	45	4%	0%	0%	0%	2%	0%	0%	0%	0%	0%	9%	16%	0%	13%	0%	11%	2%	2%	0%	0%	0%	0%	29%	11%	
Caa1	47	0%	2%	0%	0%	2%	0%	0%	9%	0%	4%	9%	9%	2%	0%	6%	6%	15%	0%	0%	0%	0%	0%	36%	0%	
Caa2	47	0%	2%	2%	0%	0%	0%	0%	4%	0%	2%	4%	2%	0%	0%	0%	15%	4%	6%	2%	0%	0%	0%	55%	0%	
Caa3	131	0%	1%	1%	1%	0%	0%	0%	0%	1%	2%	1%	0%	1%	5%	2%	4%	0%	3%	15%	0%	1%	1%	60%	3%	
Ca	311	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	0%	0%	1%	1%	3%	65%	1%	3%	18%	5%	
C	481	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%	4%	10%	9%	
Total	1,934																									

## CDOs - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	3,539	2%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	5%	5%	20%	32%	31%
Aa1	289	0%	1%	1%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	3%	11%	39%	41%
Aa2	1,084	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	1%	0%	1%	0%	0%	0%	0%	0%	1%	8%	24%	36%	26%
Aa3	402	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	18%	42%	37%
A1	219	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	41%	42%	
A2	864	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	2%	32%	36%	27%
A3	466	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	1%	0%	0%	0%	2%	43%	27%	24%
Baa1	171	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	26%	35%	36%
Baa2	781	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	42%	34%	22%
Baa3	301	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	36%	26%	34%
Ba1	195	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	39%	29%	28%
Ba2	304	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	29%	43%	25%
Ba3	165	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	9%	41%	19%	28%
B1	80	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	50%	29%	19%
B2	74	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	45%	27%	24%
B3	68	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	59%	19%	18%	
Caa1	62	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	55%	26%	16%
Caa2	71	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	59%	14%	24%
Caa3	113	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	58%	19%	20%
Ca	209	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	64%	9%	24%
C	79	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	68%	10%	18%	
Total	9,536																								

CDO: Derivative securities such as structured notes and repackaged securities are not considered as part of this sector. Commercial real estate (CRE) CDOs are also excluded (see the definition of CMBS).

## Asset-Backed Commercial Paper (ABCP)

### ABCP - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	171	64%	0%	0%	0%	0%	34%	2%
P-2	8	0%	50%	25%	0%	0%	13%	13%
P-3	1	0%	0%	100%	0%	0%	0%	0%
NP	-							
<b>Total</b>	<b>180</b>							

### ABCP - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	173	52%	1%	0%	0%	0%	45%	3%
P-2	17	18%	18%	0%	0%	0%	47%	18%
P-3	2	0%	0%	50%	0%	0%	0%	50%
NP	-							
<b>Total</b>	<b>192</b>							

### ABCP - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	480	13%	1%	0%	0%	1%	18%	66%
P-2	4	0%	0%	0%	0%	0%	25%	75%
P-3	-							
NP	2	0%	0%	0%	0%	100%	0%	0%
<b>Total</b>	<b>486</b>							

This subclass covers all Moody's rated public short-term issuances

## Other Asset Backed Securities (Other ABS)

### Other ABS - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	2,331	71%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	29%	0%
Aa1	197	32%	44%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	0%
Aa2	346	34%	3%	38%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%	0%
Aa3	220	29%	5%	7%	40%	4%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%
A1	246	16%	5%	6%	5%	52%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%
A2	195	14%	3%	3%	5%	3%	51%	1%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%
A3	138	6%	4%	4%	8%	13%	1%	47%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	0%
Baa1	144	5%	3%	6%	1%	7%	8%	7%	40%	5%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%
Baa2	147	2%	0%	4%	4%	5%	5%	5%	5%	50%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%
Baa3	190	1%	0%	0%	1%	5%	1%	2%	8%	5%	68%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	8%	0%
Ba1	80	0%	0%	3%	3%	1%	1%	1%	1%	4%	8%	58%	1%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	18%	0%
Ba2	54	0%	0%	0%	0%	7%	0%	0%	0%	4%	6%	2%	63%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%
Ba3	68	0%	0%	0%	0%	0%	0%	1%	1%	1%	4%	0%	9%	56%	3%	0%	0%	0%	0%	0%	0%	0%	0%	21%	3%
B1	62	0%	0%	0%	0%	0%	0%	0%	2%	2%	3%	8%	0%	8%	56%	0%	0%	0%	3%	0%	0%	0%	0%	18%	0%
B2	57	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	4%	0%	2%	5%	70%	2%	0%	0%	0%	0%	0%	0%	14%	0%
B3	62	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	3%	2%	0%	6%	68%	5%	2%	0%	0%	0%	0%	13%	0%
Caa1	36	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	6%	8%	0%	64%	3%	8%	0%	0%	0%	8%	0%
Caa2	29	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	3%	3%	7%	7%	0%	52%	0%	7%	0%	0%	17%	0%
Caa3	39	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	3%	0%	3%	10%	3%	64%	8%	0%	0%	8%	0%
Ca	38	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	50%	13%	0%	21%	8%
C	93	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	90%	0%	4%	4%
Total	4,772																								

### Other ABS - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	2,347	31%	1%	1%	0%	1%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	63%	0%
Aa1	261	24%	7%	2%	2%	8%	1%	2%	2%	1%	7%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	43%	0%
Aa2	252	31%	4%	10%	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	49%	1%
Aa3	234	27%	3%	4%	7%	2%	0%	2%	1%	2%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%
A1	275	8%	3%	4%	2%	7%	1%	1%	1%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	71%	0%
A2	320	18%	3%	3%	3%	6%	15%	2%	0%	1%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	47%	0%
A3	165	6%	1%	4%	5%	7%	2%	14%	1%	1%	2%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%	53%	0%
Baa1	147	10%	0%	1%	0%	4%	6%	5%	14%	4%	4%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	49%	0%
Baa2	166	9%	1%	2%	3%	2%	2%	6%	4%	16%	2%	2%	2%	0%	1%	0%	0%	0%	1%	1%	0%	0%	0%	45%	1%
Baa3	109	6%	2%	4%	2%	2%	3%	2%	4%	3%	13%	5%	4%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	1%
Ba1	75	1%	0%	5%	0%	1%	0%	4%	1%	7%	8%	17%	1%	1%	1%	1%	0%	0%	1%	0%	0%	0%	0%	47%	1%
Ba2	96	2%	0%	6%	3%	2%	1%	1%	3%	1%	3%	1%	15%	2%	2%	1%	3%	8%	0%	3%	0%	1%	0%	41%	0%
Ba3	54	0%	0%	2%	0%	4%	0%	6%	2%	4%	4%	2%	6%	28%	6%	6%	2%	0%	0%	0%	0%	0%	0%	31%	0%
B1	103	0%	1%	1%	0%	0%	0%	0%	1%	2%	1%	4%	1%	10%	16%	4%	3%	1%	2%	0%	1%	0%	0%	53%	0%
B2	73	0%	0%	0%	0%	1%	0%	0%	1%	1%	3%	3%	1%	1%	4%	40%	14%	4%	3%	0%	0%	0%	0%	22%	1%
B3	59	0%	0%	0%	2%	0%	0%	0%	0%	0%	3%	0%	2%	3%	2%	3%	34%	15%	12%	0%	3%	0%	0%	20%	0%
Caa1	46	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%	7%	4%	2%	4%	11%	0%	2%	9%	7%	0%	50%	0%
Caa2	38	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	3%	3%	5%	0%	0%	13%	3%	8%	3%	5%	47%	8%
Caa3	55	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	4%	2%	2%	7%	0%	27%	4%	5%	4%	35%	9%
Ca	54	0%	0%	0%	0%	2%	0%	2%	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	6%	15%	7%	4%	50%	11%
C	105	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%	72%	5%	13%	7%
Total	5,034																								

## Other ABS - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	5,380	6%	1%	1%	1%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	46%	41%
Aa1	196	9%	1%	1%	1%	6%	2%	3%	4%	4%	9%	2%	1%	2%	1%	1%	2%	0%	1%	1%	0%	0%	2%	21%	31%
Aa2	378	2%	0%	2%	1%	1%	1%	1%	1%	0%	1%	0%	1%	1%	1%	1%	1%	1%	1%	0%	1%	0%	1%	29%	54%
Aa3	168	0%	2%	2%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	4%	1%	0%	1%	1%	1%	1%	2%	4%	34%	43%
A1	269	0%	0%	1%	0%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	1%	0%	4%	37%	48%
A2	867	3%	1%	0%	1%	1%	1%	1%	1%	0%	1%	1%	0%	1%	1%	0%	1%	0%	0%	1%	0%	1%	2%	47%	36%
A3	167	2%	1%	1%	1%	5%	2%	2%	0%	2%	1%	2%	1%	0%	0%	1%	1%	1%	1%	3%	0%	5%	11%	34%	22%
Baa1	205	0%	1%	0%	0%	0%	0%	1%	0%	1%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	9%	45%	38%
Baa2	549	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	1%	1%	1%	0%	0%	1%	0%	0%	1%	3%	47%	42%
Baa3	372	0%	0%	1%	0%	1%	0%	1%	2%	1%	2%	1%	2%	2%	1%	4%	5%	2%	1%	0%	1%	1%	6%	43%	27%
Ba1	159	0%	0%	1%	1%	0%	1%	1%	1%	2%	1%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%	1%	2%	41%	44%
Ba2	134	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	1%	0%	0%	0%	1%	2%	1%	0%	6%	45%	41%
Ba3	54	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	2%	0%	2%	0%	0%	0%	2%	0%	2%	11%	39%	41%
B1	23	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	13%	22%	52%
B2	45	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	16%	36%	40%
B3	24	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	4%	0%	0%	0%	0%	13%	21%	29%	29%
Caa1	28	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	7%	25%	36%	29%
Caa2	17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	29%	24%	29%	12%
Caa3	16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	31%	44%	6%	19%
Ca	29	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	14%	52%	10%	21%
C	42	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	57%	24%	0%
Total	9,122																								

## Other Structured Finance Products (Other SFPs)

### Other SFPs - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,095	87%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%
Aa1	181	14%	76%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	1%
Aa2	156	3%	1%	83%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	1%
Aa3	88	3%	2%	14%	57%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%
A1	157	4%	2%	4%	1%	64%	8%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	2%
A2	135	1%	0%	1%	1%	2%	81%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	9%	1%
A3	109	0%	0%	0%	3%	6%	1%	76%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	1%
Baa1	85	0%	0%	0%	1%	1%	1%	1%	71%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	7%
Baa2	61	2%	0%	0%	0%	3%	0%	2%	7%	64%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
Baa3	99	0%	0%	0%	0%	0%	0%	2%	8%	7%	63%	1%	0%	1%	0%	0%	1%	0%	0%	0%	0%	1%	0%	14%	2%
Ba1	72	0%	0%	0%	0%	0%	0%	1%	1%	4%	4%	71%	1%	1%	1%	0%	3%	0%	0%	0%	0%	0%	0%	11%	0%
Ba2	76	1%	0%	0%	0%	0%	0%	0%	1%	4%	1%	30%	46%	0%	3%	1%	0%	0%	0%	0%	0%	0%	0%	7%	5%
Ba3	276	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	14%	9%	14%	5%	2%	1%	0%	0%	4%	0%	13%	35%
B1	114	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	1%	21%	12%	4%	0%	1%	1%	0%	8%	0%	13%	37%
B2	118	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	2%	0%	31%	5%	3%	8%	1%	2%	8%	0%	11%	27%
B3	162	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	38%	8%	12%	2%	1%	7%	0%	7%	22%
Caa1	298	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	37%	10%	4%	4%	7%	0%	7%	26%
Caa2	541	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	69%	4%	3%	8%	0%	5%	9%
Caa3	749	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	65%	4%	15%	0%	5%	9%
Ca	628	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%	67%	16%	0%	5%	7%
C	380	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	3%	66%	0%	22%	5%
Total	5,580																								

### Other SFPs - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	635	68%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Aa1	69	29%	20%	10%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	36%	3%
Aa2	53	19%	17%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	43%	0%
Aa3	144	6%	2%	33%	21%	4%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	1%
A1	109	6%	1%	13%	1%	28%	6%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	41%	0%
A2	168	3%	0%	7%	1%	20%	48%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	1%
A3	157	4%	0%	11%	4%	6%	2%	32%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	3%
Baa1	161	1%	2%	3%	1%	4%	5%	4%	29%	1%	2%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	37%	10%
Baa2	93	2%	1%	0%	1%	1%	2%	0%	2%	27%	3%	1%	6%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	44%	6%
Baa3	109	2%	0%	1%	0%	1%	2%	0%	3%	10%	28%	1%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	43%	6%
Ba1	69	0%	1%	1%	0%	0%	0%	3%	3%	1%	7%	39%	3%	0%	1%	3%	0%	0%	0%	0%	0%	0%	0%	23%	13%
Ba2	77	0%	0%	0%	0%	1%	0%	1%	4%	1%	5%	10%	27%	1%	8%	4%	3%	0%	0%	0%	0%	0%	0%	27%	6%
Ba3	538	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	1%	6%	6%	8%	4%	1%	1%	1%	1%	10%	0%	26%	28%
B1	150	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	3%	1%	0%	9%	7%	5%	3%	3%	1%	1%	15%	0%	27%	24%
B2	162	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	2%	0%	18%	9%	2%	6%	1%	2%	16%	0%	20%	20%
B3	150	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	1%	2%	22%	12%	10%	1%	2%	3%	0%	17%	26%
Caa1	353	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	3%	26%	17%	7%	3%	6%	0%	11%	25%
Caa2	571	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	1%	59%	9%	3%	5%	0%	11%	9%
Caa3	798	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	54%	16%	9%	0%	12%	7%
Ca	538	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%	57%	20%	0%	8%	8%
C	433	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	3%	56%	0%	30%	6%
Total	5,537																								

## Other SFPs - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	6,666	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	1%	29%	65%
Aa1	141	2%	1%	0%	0%	19%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	30%	43%
Aa2	213	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	39%	51%
Aa3	230	0%	1%	1%	0%	0%	0%	0%	1%	3%	0%	3%	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	34%	55%
A1	253	0%	0%	0%	0%	5%	15%	11%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	35%	29%	
A2	207	0%	1%	0%	0%	0%	1%	2%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	35%	45%
A3	162	1%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	43%	51%
Baa1	125	3%	0%	0%	0%	0%	1%	1%	0%	0%	0%	1%	0%	1%	1%	0%	0%	0%	0%	0%	1%	2%	6%	51%	34%
Baa2	203	1%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	2%	0%	0%	1%	0%	0%	0%	0%	1%	2%	3%	48%	37%
Baa3	202	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	1%	3%	6%	52%	31%
Ba1	55	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	51%	45%
Ba2	65	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	5%	0%	2%	51%	42%
Ba3	49	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	4%	6%	39%	49%
B1	33	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	21%	64%
B2	30	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	13%	3%	0%	0%	37%	43%
B3	37	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	43%	51%	
Caa1	15	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	53%
Caa2	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%	13%	50%	
Caa3	13	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	54%	15%	31%	
Ca	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%	0%	63%	
C	13	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	92%	
Total	8,728																								

Other SFPs includes the following Moody's rated long-term product lines: \*

- » ABCP - Fully Supported
- » ABCP - Fully Supported LOC
- » ABCP - Mortgage Warehouse
- » ABCP - MTN
- » ABCP - Other
- » ABCP - Partially Supported
- » CDO - Repackaged Securities
- » CDO - Repackaged Securities - CBO
- » CDO - Repackaged Securities - CLO
- » Covered Bonds \*\*
- » Other - CAPCO
- » Other - Collateralized GICs
- » Other - Credit Derivatives
- » Other - DPC
- » Other - DPC (FS)
- » Other - Insurance Linked
- » Other - Other
- » Other - Preferred Stock
- » Other - Repackaged Securities
- » Other - Structured Covered Bonds
- » Other - Structured Notes
- » Other - Tax Credit Linked Structured Notes
- » Structured Investment Vehicles – ABCP
- » Structured Investment Vehicles - CDO

\* Starting from November 1, 2016, nonconventional securities like Interest-Only (IO) tranches and combination securities (combo notes) are reclassified as Other SFPs.

\*\* Please note that single-issuer covered bonds are reported on deal level instead of on series level. The rationale is that ratings of a covered bond deal are almost always unambiguously the same as ratings of such deal's underlying series. Given that a covered bond deal could have as many as 300 series issued under it, reporting on series level would introduce a great amount of redundancy. In the rare cases where a covered bond deal has different ratings on its concurrently outstanding series, the rating for the covered bond deal generally corresponds to the rating of the highest rated series.

## Sovereign Issuers

### Sovereign Issuers - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	12	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	5	0%	40%	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	6	0%	0%	83%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa3	6	0%	0%	0%	83%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A1	5	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A2	4	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A3	9	0%	0%	0%	0%	0%	11%	89%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa1	3	0%	0%	0%	0%	0%	0%	0%	67%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa2	9	0%	0%	0%	0%	0%	0%	0%	0%	89%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa3	9	0%	0%	0%	0%	0%	0%	0%	11%	11%	56%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba1	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba2	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba3	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	60%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B1	17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	29%	53%	12%	6%	0%	0%	0%	0%	0%	0%	0%	0%
B2	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	80%	10%	0%	0%	0%	0%	0%	0%	0%	0%
B3	14	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	79%	7%	0%	0%	0%	0%	7%	0%	0%
Caa1	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67%	0%	33%	0%	0%	0%	0%	0%
Caa2	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	50%	0%	0%
Caa3	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	50%	0%	0%
Ca	-																								
C	-																								
Total	134																								

### Sovereign Issuers - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	14	86%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	4	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	5	0%	0%	60%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa3	7	0%	0%	14%	57%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A1	6	0%	0%	0%	0%	67%	17%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A2	3	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A3	5	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa1	7	0%	0%	0%	0%	0%	14%	29%	29%	14%	0%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa2	13	0%	0%	0%	0%	0%	0%	0%	0%	54%	23%	8%	8%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa3	7	0%	0%	0%	0%	0%	0%	14%	0%	14%	29%	29%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba1	7	0%	0%	0%	0%	0%	0%	0%	14%	0%	14%	43%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba2	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	33%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba3	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	20%	30%	10%	10%	10%	0%	0%	0%	0%	10%	0%	0%
B1	15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	40%	13%	7%	0%	0%	0%	0%	0%	7%	0%	0%
B2	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	25%	0%	0%	0%	0%	0%	0%	0%
B3	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	10%	10%	50%	10%	0%	10%	0%	0%	0%	0%	0%
Caa1	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	25%	0%	0%	0%	25%	0%	0%
Caa2	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	50%	0%	0%
Caa3	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	50%	0%	0%
Ca	-																								
C	-																								
Total	128																								

## Sovereign Issuers - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	20	60%	10%	15%	0%	0%	5%	5%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Aa1	2	0%	0%	0%	50%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Aa2	8	0%	0%	50%	13%	0%	0%	0%	13%	13%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Aa3	3	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
A1	8	0%	0%	0%	0%	63%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	
A2	11	0%	0%	9%	9%	9%	18%	27%	0%	9%	9%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
A3	2	0%	0%	0%	0%	0%	0%	50%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Baa1	4	0%	0%	0%	0%	0%	0%	25%	25%	0%	25%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Baa2	5	0%	0%	0%	0%	0%	0%	0%	20%	0%	20%	20%	0%	0%	20%	0%	0%	0%	0%	20%	0%	0%	0%	0%	
Baa3	4	0%	0%	0%	0%	0%	0%	0%	0%	25%	25%	0%	25%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	
Ba1	6	0%	0%	0%	0%	0%	0%	0%	0%	17%	0%	17%	50%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	
Ba2	7	0%	0%	0%	0%	0%	0%	14%	0%	29%	0%	14%	0%	14%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Ba3	3	0%	0%	0%	0%	0%	0%	0%	0%	33%	33%	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
B1	11	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	0%	18%	9%	18%	18%	0%	0%	0%	0%	18%	0%	
B2	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	17%	17%	17%	0%	0%	0%	0%	0%	17%	17%	
B3	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	33%	0%	0%	0%	0%	0%	33%	0%	
Caa1	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	40%	20%	
Caa2	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	
Caa3	-																								
Ca	-																								
C	-																								
Total	109																								

## United States Public Finance

### United States Public Finance - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	643	97%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Aa1	935	4%	91%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%
Aa2	2,553	0%	4%	89%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%
Aa3	2,272	0%	0%	7%	86%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%
A1	2,334	0%	0%	1%	6%	84%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	4%
A2	1,222	0%	0%	0%	1%	7%	82%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	4%
A3	666	0%	0%	0%	0%	1%	6%	83%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%
Baa1	328	0%	0%	0%	0%	0%	2%	7%	77%	8%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%
Baa2	227	0%	0%	0%	0%	0%	0%	0%	6%	78%	5%	3%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%
Baa3	186	0%	1%	0%	0%	0%	0%	1%	1%	8%	76%	4%	1%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%
Ba1	57	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	67%	5%	0%	2%	0%	2%	0%	0%	0%	0%	0%	0%	0%	12%
Ba2	43	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	12%	53%	9%	2%	0%	2%	0%	0%	2%	0%	0%	0%	0%	2%
Ba3	20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	45%	10%	5%	5%	5%	0%	0%	0%	0%	0%	0%	5%	20%
B1	13	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	31%	38%	8%	0%	15%	0%	0%	0%	0%	0%	0%	8%
B2	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	50%	0%	0%	0%	0%	0%	0%	0%
B3	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	86%	0%	0%	0%	0%	0%	14%	0%	0%
Caa1	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	25%	0%	0%	0%	0%	0%	50%
Caa2	-																								
Caa3	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	17%	0%	50%	0%	17%
Ca	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%
C	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%
Total	11,521																								

### United States Public Finance - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																					Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	646	84%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	12%
Aa1	899	10%	76%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	7%
Aa2	2,752	1%	9%	74%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	7%
Aa3	2,436	0%	1%	12%	67%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	10%
A1	2,715	0%	0%	1%	10%	62%	6%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	13%
A2	1,218	0%	0%	0%	2%	12%	58%	8%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	10%
A3	596	0%	0%	0%	1%	2%	12%	55%	7%	3%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	13%
Baa1	314	0%	0%	0%	1%	1%	3%	13%	45%	9%	5%	2%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	5%	14%
Baa2	217	0%	0%	0%	0%	1%	1%	4%	9%	46%	11%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	18%
Baa3	159	0%	1%	0%	1%	0%	4%	3%	3%	7%	43%	6%	3%	3%	1%	1%	1%	1%	0%	0%	0%	0%	0%	4%	19%
Ba1	75	0%	0%	0%	0%	0%	3%	4%	5%	7%	9%	19%	3%	3%	3%	0%	3%	0%	0%	1%	0%	0%	0%	3%	39%
Ba2	34	0%	0%	0%	0%	0%	3%	6%	3%	6%	9%	6%	21%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	44%
Ba3	23	0%	0%	0%	0%	0%	4%	4%	0%	4%	13%	9%	9%	13%	0%	0%	0%	9%	0%	0%	0%	0%	9%	4%	22%
B1	12	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	8%	17%	17%	8%	0%	0%	0%	0%	0%	0%	0%	0%	42%
B2	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
B3	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	11%	22%	0%	0%	0%	0%	11%	22%	0%	22%
Caa1	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	50%	0%	0%
Caa2	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	67%
Caa3	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	67%
Ca	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	67%
C	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	33%	33%	0%
Total	12,120																								

## United States Public Finance - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	1,240	33%	5%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	35%	26%
Aa1	853	14%	49%	13%	3%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	12%
Aa2	2,767	1%	10%	47%	9%	3%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	17%
Aa3	2,473	0%	3%	17%	34%	8%	3%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	18%
A1	2,986	0%	1%	7%	11%	28%	6%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	24%
A2	1,398	0%	0%	4%	11%	13%	14%	5%	2%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	23%
A3	938	0%	0%	1%	5%	11%	8%	9%	4%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	32%	25%
Baa1	536	0%	0%	0%	2%	6%	3%	6%	7%	2%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	39%	30%
Baa2	390	0%	0%	0%	1%	2%	4%	3%	5%	8%	3%	1%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	1%	36%	36%
Baa3	289	0%	0%	0%	0%	0%	2%	1%	1%	4%	5%	3%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	40%	40%
Ba1	41	0%	0%	0%	0%	0%	0%	2%	2%	5%	5%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	22%	51%
Ba2	32	0%	0%	0%	0%	0%	0%	6%	0%	3%	6%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	53%
Ba3	25	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	16%	20%	52%
B1	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	11%	67%
B2	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	13%	63%
B3	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	10%	50%
Caa1	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Caa2	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	0%
Caa3	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67%	33%	0%
Ca	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
C	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Total	14,004																								

## International Public Finance

### International Public Finance - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	16	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	14	7%	79%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	23	0%	0%	83%	9%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
Aa3	5	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A1	18	0%	0%	0%	0%	94%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A2	12	0%	0%	0%	0%	17%	83%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A3	6	0%	0%	0%	0%	0%	17%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%
Baa1	13	0%	0%	0%	0%	0%	0%	0%	92%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%
Baa2	19	0%	0%	0%	0%	0%	0%	0%	0%	79%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa3	12	0%	0%	0%	0%	0%	0%	0%	0%	0%	92%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba1	25	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	72%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
Ba2	23	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	96%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba3	23	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	87%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
B1	21	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B2	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	60%	0%	20%	0%	0%	0%	0%	0%	0%	0%
B3	12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%	25%	0%	0%	0%	0%	0%	0%	0%	0%
Caa1	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	17%	33%	0%	0%	0%	0%	0%	0%	33%
Caa2	-																								
Caa3	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%
Ca	-																								
C	-																								
Total	255																								

### International Public Finance - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	19	84%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1	16	6%	50%	44%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2	16	0%	0%	81%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa3	4	0%	0%	0%	50%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%
A1	16	0%	0%	0%	0%	88%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A2	4	0%	0%	0%	0%	25%	50%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A3	5	0%	0%	0%	0%	0%	20%	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%
Baa1	8	0%	0%	0%	0%	0%	0%	0%	88%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa2	21	0%	0%	0%	0%	0%	0%	0%	5%	67%	5%	10%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%
Baa3	21	0%	0%	0%	0%	0%	0%	0%	0%	5%	38%	19%	14%	14%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%
Ba1	19	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	58%	5%	11%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%
Ba2	33	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	48%	15%	15%	0%	0%	3%	0%	0%	0%	0%	0%	0%	15%
Ba3	22	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%	36%	5%	5%	5%	0%	0%	0%	0%	0%	5%	14%
B1	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%
B2	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	33%	0%	0%	0%	0%	0%	0%	0%	0%	17%
B3	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Caa1	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	17%	17%	17%	0%	0%	0%	0%	0%	0%
Caa2	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Caa3	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ca	-																								
C	-																								
Total	230																								

## International Public Finance - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)																				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)			
Credit Ratings	Number of Ratings Outstanding	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	Default	Paid Off	Withdrawn (other)
Aaa	31	45%	16%	13%	0%	0%	0%	6%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%
Aa1	33	6%	15%	18%	3%	21%	0%	0%	3%	6%	3%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	15%
Aa2	27	0%	0%	19%	4%	0%	4%	0%	0%	11%	7%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	48%
Aa3	21	0%	0%	0%	0%	5%	0%	0%	0%	14%	0%	5%	5%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67%
A1	12	0%	0%	0%	0%	8%	0%	0%	0%	17%	0%	17%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	8%	8%	33%
A2	10	0%	0%	0%	0%	20%	20%	0%	10%	0%	20%	10%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%
A3	4	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%
Baa1	7	0%	0%	0%	0%	0%	0%	14%	43%	0%	0%	14%	14%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa2	3	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa3	13	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%	31%	8%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%
Ba1	18	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	6%	22%	11%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	50%
Ba2	20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	10%	15%	20%	0%	0%	0%	0%	0%	0%	0%	5%	0%	45%
Ba3	20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	5%	10%	25%	0%	5%	0%	0%	0%	0%	0%	0%	0%	45%
B1	14	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	14%	0%	7%	0%	0%	0%	0%	14%	0%	43%
B2	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B3	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	50%	0%	0%
Caa1	-																								
Caa2	-																								
Caa3	-																								
Ca	-																								
C	-																								
Total	237																								

## Short Term Municipal - P Scale

### Short Term Municipal - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	76	95%	0%	0%	0%	0%	0%	5%
P-2	1	0%	100%	0%	0%	0%	0%	0%
P-3	-							
NP	-							
<b>Total</b>	<b>77</b>							

### Short Term Municipal - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	69	86%	1%	0%	0%	0%	0%	13%
P-2	-							
P-3	-							
NP	-							
<b>Total</b>	<b>69</b>							

### Short Term Municipal - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	P-1	P-2	P-3	NP	Default	Paid Off	Withdrawn (other)
P-1	43	51%	0%	0%	0%	0%	9%	40%
P-2	-							
P-3	-							
NP	-							
<b>Total</b>	<b>43</b>							

## Short Term Municipal - MIG Scale

### Short Term Municipal - 1-Year Transition and Default Rates

(December 31, 2016 through December 31, 2017)

Credit Ratings as of 12/31/2016		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2016 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	MIG 1	MIG 2	MIG 3	SG	Default	Paid Off	Withdrawn (other)
MIG 1	164	55%	0%	0%	0%	0%	36%	9%
MIG 2	5	0%	40%	0%	0%	0%	20%	40%
MIG 3	1	0%	0%	0%	0%	0%	0%	100%
SG	1	0%	0%	0%	0%	0%	0%	100%
Total	171							

### Short Term Municipal - 3-Year Transition and Default Rates

(December 31, 2014 through December 31, 2017)

Credit Ratings as of 12/31/2014		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2014 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	MIG 1	MIG 2	MIG 3	SG	Default	Paid Off	Withdrawn (other)
MIG 1	197	25%	0%	0%	0%	0%	63%	12%
MIG 2	11	0%	0%	0%	0%	0%	91%	9%
MIG 3	3	0%	0%	0%	0%	0%	33%	67%
SG	-							
Total	211							

### Short Term Municipal - 10-Year Transition and Default Rates

(December 31, 2007 through December 31, 2017)

Credit Ratings as of 12/31/2007		Credit Ratings as of 12/31/2017 (Percent)				Other Outcomes During 12/31/2007 - 12/31/2017 (Percent)		
Credit Ratings	Number of Ratings Outstanding	MIG 1	MIG 2	MIG 3	SG	Default	Paid Off	Withdrawn (other)
MIG 1	392	6%	0%	0%	0%	0%	88%	6%
MIG 2	2	0%	0%	0%	0%	0%	100%	0%
MIG 3	1	0%	0%	0%	0%	100%	0%	0%
SG	-							
Total	395							

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## Definition of Symbols

Moody's definitions of the symbols, numbers and scores in the rating scales used by Moody's to denote credit rating categories and notches within those categories for the classes and subclasses of credit ratings shown in the Matrices, are as follows:

## Moody's Global Rating Scales

Ratings assigned on Moody's global long-term and short-term rating scales are forward-looking opinions of the relative credit risks of financial obligations issued by non-financial corporates, financial institutions, structured finance vehicles, project finance vehicles, and public sector entities. Long-term ratings are assigned to issuers or obligations with an original maturity of one year or more and reflect both on the likelihood of a default on contractually promised payments and the expected financial loss suffered in the event of default. Short-term ratings are assigned to obligations with an original maturity of thirteen months or less and reflect both on the likelihood of a default on contractually promised payments and the expected financial loss suffered in the event of default.<sup>2,3</sup>

Moody's differentiates structured finance ratings from fundamental ratings (i.e., ratings on nonfinancial corporate, financial institution, and public sector entities) on the global long-term scale by adding (sf) to all structured finance ratings.<sup>4</sup> The addition of (sf) to structured finance ratings should eliminate any presumption that such ratings and fundamental ratings at the same letter grade level will behave the same. The (sf) indicator for structured finance security ratings indicates that otherwise similarly rated structured finance and fundamental securities may have different risk characteristics. Through its current methodologies, however, Moody's aspires to achieve broad expected equivalence in structured finance and fundamental rating performance when measured over a long period of time.

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<sup>2</sup> For certain structured finance, preferred stock and hybrid securities in which payment default events are either not defined or do not match investors' expectations for timely payment, long-term and short-term ratings reflect the likelihood of impairment (as defined below in this publication) and financial loss in the event of impairment.

<sup>3</sup> Supranational institutions and central banks that hold sovereign debt or extend sovereign loans, such as the IMF or the European Central Bank, may not always be treated similarly to other investors and lenders with similar credit exposures. Long-term and short-term ratings assigned to obligations held by both supranational institutions and central banks, as well as other investors, reflect only the credit risks faced by other investors unless specifically noted otherwise.

<sup>4</sup> Like other global scale ratings, (sf) ratings reflect both the likelihood of a default and the expected loss suffered in the event of default. Ratings are assigned based on a rating committee's assessment of a security's expected loss rate (default probability multiplied by expected loss severity), and may be subject to the constraint that the final expected loss rating assigned would not be more than a certain number of notches, typically three to five notches, above the rating that would be assigned based on an assessment of default probability alone. The magnitude of this constraint may vary with the level of the rating, the seasoning of the transaction, and the uncertainty around the assessments of expected loss and probability of default.

### Global Long-Term Rating Scale

<b>Aaa</b>	Obligations rated Aaa are judged to be of the highest quality, subject to the lowest level of credit risk.
<b>Aa</b>	Obligations rated Aa are judged to be of high quality and are subject to very low credit risk.
<b>A</b>	Obligations rated A are judged to be upper-medium grade and are subject to low credit risk.
<b>Baa</b>	Obligations rated Baa are judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics.
<b>Ba</b>	Obligations rated Ba are judged to be speculative and are subject to substantial credit risk.
<b>B</b>	Obligations rated B are considered speculative and are subject to high credit risk.
<b>Caa</b>	Obligations rated Caa are judged to be speculative of poor standing and are subject to very high credit risk.
<b>Ca</b>	Obligations rated Ca are highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest.
<b>C</b>	Obligations rated C are the lowest rated and are typically in default, with little prospect for recovery of principal or interest.

Note: Moody's appends numerical modifiers 1, 2, and 3 to each generic rating classification from Aa through Caa. The modifier 1 indicates that the obligation ranks in the higher end of its generic rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates a ranking in the lower end of that generic rating category. Additionally, a "(hyb)" indicator is appended to all ratings of hybrid securities issued by banks, insurers, finance companies, and securities firms.\*

Note: For more information on long-term ratings assigned to obligations in default, please see the definition "Long-Term Credit Ratings for Defaulted or Impaired Securities" in the Other Definitions section of this publication.

*\* By their terms, hybrid securities allow for the omission of scheduled dividends, interest, or principal payments, which can potentially result in impairment if such an omission occurs. Hybrid securities may also be subject to contractually allowable write-downs of principal that could result in impairment. Together with the hybrid indicator, the long-term obligation rating assigned to a hybrid security is an expression of the relative credit risk associated with that security.*

### Global Short-Term Rating Scale

<b>P-1</b>	Issuers (or supporting institutions) rated Prime-1 have a superior ability to repay short-term debt obligations.
<b>P-2</b>	Issuers (or supporting institutions) rated Prime-2 have a strong ability to repay short-term debt obligations.
<b>P-3</b>	Issuers (or supporting institutions) rated Prime-3 have an acceptable ability to repay short-term obligations.
<b>NP</b>	Issuers (or supporting institutions) rated Not Prime do not fall within any of the Prime rating categories.

## Standard Linkage Between the Global Long-Term and Short-Term Rating Scales

The following table indicates the long-term ratings consistent with different short-term ratings when such long-term ratings exist.<sup>5</sup>

LONG-TERM RATING	SHORT-TERM RATING
<div> Aaa Aa1 Aa2 Aa3 A1 A2 A3 Baa1 Baa2 Baa3 </div>	<div> Prime-1       Prime-2 Prime-3 </div>
<div> Ba1, Ba2, Ba3 B1, B2, B3 Caa1, Caa2, Caa3 Ca, C </div>	<div> Not Prime </div>

<sup>5</sup> Structured finance short-term ratings are usually based either on the short-term rating of a support provider or on an assessment of cash flows available to retire the financial obligation.

## US Municipal Short-Term Debt and Demand Obligation Ratings

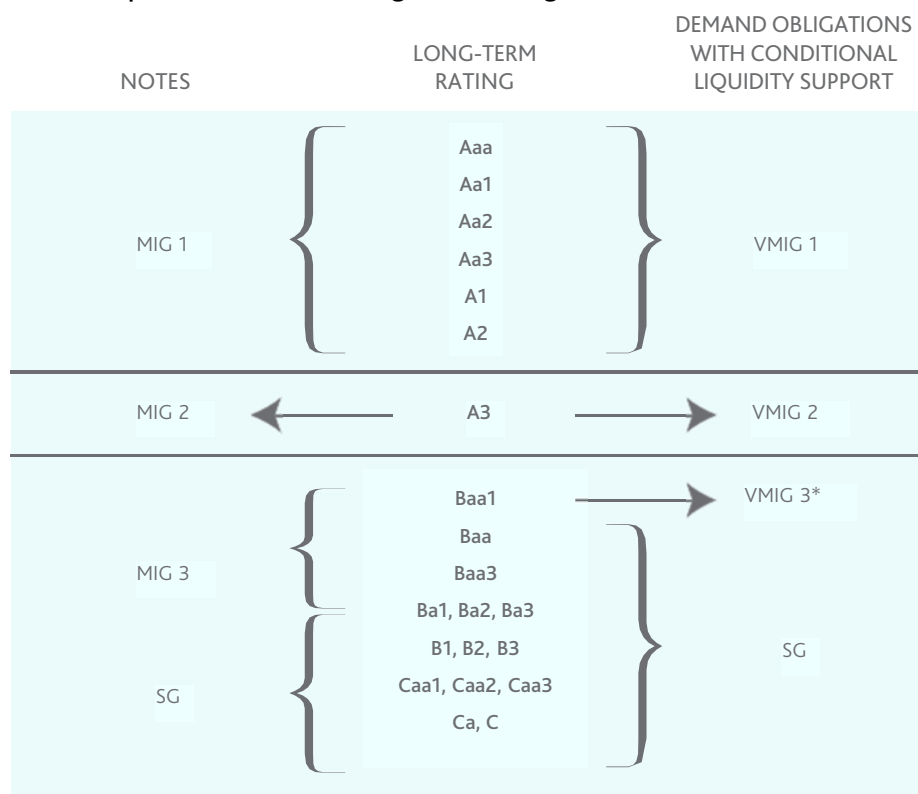
### Short-Term Obligation Ratings

While the global short-term 'prime' rating scale is applied to US municipal tax-exempt commercial paper, these programs are typically backed by external letters of credit or liquidity facilities and their short-term prime ratings usually map to the long-term rating of the enhancing bank or financial institution and not to the municipality's rating. Other short-term municipal obligations, which generally have different funding sources for repayment, are rated using two additional short-term rating scales (i.e., the MIG and VMIG scales).

The Municipal Investment Grade (MIG) scale is used to rate US municipal bond anticipation notes of up to three years maturity. Municipal notes rated on the MIG scale may be secured by either pledged revenues or proceeds of a take-out financing received prior to note maturity. MIG ratings expire at the maturity of the obligation, and the issuer's long-term rating is only one consideration in assigning the MIG rating. MIG ratings are divided into three levels—MIG 1 through MIG 3—while speculative grade short-term obligations are designated SG.

<b>MIG 1</b>	This designation denotes superior credit quality. Excellent protection is afforded by established cash flows, highly reliable liquidity support, or demonstrated broad-based access to the market for refinancing.
<b>MIG 2</b>	This designation denotes strong credit quality. Margins of protection are ample, although not as large as in the preceding group.
<b>MIG 3</b>	This designation denotes acceptable credit quality. Liquidity and cash-flow protection may be narrow, and market access for refinancing is likely to be less well-established.
<b>SG</b>	This designation denotes speculative-grade credit quality. Debt instruments in this category may lack sufficient margins of protection.

## US Municipal Short-Term vs. Long-Term Ratings



\* For VRDBs supported with conditional liquidity support, short-term ratings transition down at higher long-term ratings to reflect the risk of termination of liquidity support as a result of a downgrade below investment grade.

VMIG ratings of VRDBs with unconditional liquidity support reflect the short-term debt rating (or counterparty assessment) of the liquidity support provider with VMIG 1 corresponding to P-1, VMIG 2 to P-2, VMIG 3 to P-3 and SG to not prime.

For more complete discussion of these rating transitions, please see Annex B of Moody's Methodology titled [Variable Rate Instruments Supported by Conditional Liquidity Facilities](#)

## Issuer Ratings

Issuer Ratings are opinions of the ability of entities to honor senior unsecured debt and debt like obligations.<sup>6</sup> As such, Issuer Ratings incorporate any external support that is expected to apply to all current and future issuance of senior unsecured financial obligations and contracts, such as explicit support stemming from a guarantee of all senior unsecured financial obligations and contracts, and/or implicit support for issuers subject to joint default analysis (e.g. banks and government-related issuers). Issuer Ratings do not incorporate support arrangements, such as guarantees, that apply only to specific (but not to all) senior unsecured financial obligations and contracts. While Issuer Ratings reflect the risk that debt and debt-like claims are not serviced on a timely basis, they do not reflect the risk that a contract or other non-debt obligation will be subjected to commercial disputes. Additionally, while an issuer may have senior unsecured obligations held by both supranational institutions and central banks (e.g., IMF, European Central Bank), as well as other investors, Issuer Ratings reflect only the risks faced by other investors.

<sup>6</sup> Issuer Ratings as applied to US local governments typically reflect an unlimited general obligation pledge, which may have security and structural features in some states that improve credit quality for general obligation bondholders, but not necessarily for other counterparties holding obligations that may lack such features.

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## Long-Term and Short-Term Obligation Ratings

Moody's assigns ratings to long-term and short-term financial obligations. Long-term ratings are assigned to issuers or obligations with an original maturity of one year or more and reflect both on the likelihood of a default on contractually promised payments and the expected financial loss suffered in the event of default. Short-term ratings are assigned to obligations with an original maturity of thirteen months or less and reflect both on the likelihood of a default on contractually promised payments and the expected financial loss suffered in the event of default.

## Definition of Default

Moody's definition of default is applicable only to debt or debt-like obligations (e.g., swap agreements). Four events constitute a debt default under Moody's definition:

- a) a missed or delayed disbursement of a contractually-obligated interest or principal payment (excluding missed payments cured within a contractually allowed grace period), as defined in credit agreements and indentures;
- b) a bankruptcy filing or legal receivership by the debt issuer or obligor that will likely cause a miss or delay in future contractually-obligated debt service payments;
- c) a distressed exchange whereby 1) an issuer offers creditors a new or restructured debt, or a new package of securities, cash or assets that amount to a diminished value relative to the debt obligation's original promise and 2) the exchange has the effect of allowing the issuer to avoid a likely eventual default; or
- d) a change in the payment terms of a credit agreement or indenture imposed by the sovereign that results in a diminished financial obligation, such as a forced currency re-denomination (imposed by the debtor, or the debtor's sovereign) or a forced change in some other aspect of the original promise, such as indexation or maturity.<sup>7</sup>

Moody's definition of default does not include so-called "technical defaults," such as maximum leverage or minimum debt coverage violations, unless the obligor fails to cure the violation and fails to honor the resulting debt acceleration which may be required. For structured finance securities, technical defaults (such as breach of an overcollateralization test or certain other events of default as per the legal documentation of the issuer), or a temporary missed interest payment on a security whose terms allow for the deferral of such payments together with corresponding interest (such as PIKable securities) prior to its legal final maturity date do not constitute defaults. Also excluded are payments owed on long-term debt obligations which are missed due to purely technical or administrative errors which are 1) not related to the ability or willingness to make the payments and 2) are cured in very short order (typically, 1-2 business days).

Finally, in select instances based on the facts and circumstances, missed payments on financial contracts or claims may be excluded if they are the result of legal disputes regarding the validity of those claims.

## Credit Rating Histories

The credit rating histories required to be disclosed pursuant to 17 CFR 17g-7(b) are located on Moody's website, [www.moodys.com](http://www.moodys.com), at the following URL: <https://www.moodys.com/Pages/reg001004.aspx>.

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<sup>7</sup> Moreover, unlike a general tax on financial wealth, the imposition of a tax by a sovereign on the coupon or principal payment on a specific class of government debt instruments (even if retroactive) would represent a default. Targeted taxation on government securities would represent a default even if the government's action were motivated by fairness or other considerations, rather than inability or unwillingness to pay.